

## **REMARKS**

In the Office Action mailed on December 23, 2003, the Examiner rejected claims 1-21 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,387,519 (hereinafter “the 519 patent”) to Anderson, et al. The Examiner has also rejected claims 1-19 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,210,472 (hereinafter “the 472 patent”) to Kwan, et al.

In this response Applicants present various amendments and clarifying remarks believed to overcome the Examiner’s rejections and place the claims in condition for allowance.

### **A. Claim 1 is patentable under 35 U.S.C. §103 over the cited references**

For a claim to be obvious, the prior art must 1) suggest to a person of ordinary skill in the art that they should make the claimed composition or carry out the claimed process, and 2) reveal to a person of ordinary skill in the art a reasonable expectation of success in making the composition or carrying out the process. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Further, to establish *prima facie* obviousness of a claim, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. §2143.03 (8<sup>th</sup> ed.). For the following reasons Applicants submit that the references cited by the Examiner do not teach or suggest all the limitations of the pending claims.

#### **1. The 519 patent is not reasonably suggestive of the claimed composition**

Claim 1 relates to a composition comprising urethane polymer and fumed alumina. The 519 patent relates to multi-component composite coatings having particles at a surface region. With as many as 250 claims and only 31 examples, the 519 patent indeed literally mentions polyurethane and alumina, but the disclosure does not provide sufficient guidance to render Claim 1 composition obvious to one of ordinary skill in the art. In the 519 patent, polyurethane and alumina (not fumed alumina) are taught, if not buried, in such an over broad context that the disclosure actually has no suggestive effect, for a skilled artisan to arrive at the specific

combination of urethane polymer and fumed alumina. For example, polyurethane is disclosed in the 519 patent to be among “nonlimiting examples of suitable thermoplastic materials include thermoplastic polyesters such as polyethylene terephthalate, polybutylene terephthalate, and polyethylene naphthalate, polycarbonates, polyolefins such as polyethylene, polypropylene, and polyisobutene, acrylic polymers such as copolymers of styrene and an acrylic acid monomer, and polymers containing methacrylate, polyamides, thermoplastic polyurethanes, vinyl polymers, and mixtures of any of the foregoing” and “nonlimiting examples of suitable thermoset materials include thermoset polyesters, vinyl esters, epoxy materials, phenolics, aminoplasts, thermoset polyurethanes, and mixtures of any of the foregoing” (column 13, lines 8-28). Similarly, the 519 patent also lists alumina, not fumed alumina, among a giant list including “... for example a core of essentially a single inorganic oxide such as silica in colloidal, fumed, or amorphous form, alumina or colloidal alumina, titanium dioxide, cesium oxide, yttrium oxide, colloidal yttria, zirconia, e.g., colloidal or amorphous zirconia, and mixtures of any of the foregoing; or an inorganic oxide of one type upon which is deposited an organic oxide of another type...”, “nonpolymeric, inorganic materials...comprise inorganic materials selected from graphite, metals, oxides, carbides, nitrides, borides, sulfides, silicates, carbonates, sulfates, and hydroxides”, “...zinc oxide...”, “nonlimiting examples of suitable inorganic sulfides include molybdenum disulfide, tantalum disulfide, tungsten disulfide, and zinc sulfide...”, “nonlimiting examples of useful inorganic silicates include aluminum silicates and magnesium silicates, such as vermiculite”, and “nonlimiting examples of suitable metals include molybdenum, platinum, palladium, nickel, aluminum, copper, gold, iron, silver, alloys, and mixtures of any of the foregoing”.

In short, the number of polymer-filler combinations taught in the ‘519 patent is countless. Accordingly, the skilled artisan, and in this instance the Examiner, only arrives at the claimed invention through impermissible hindsight.

**2. The 519 patent does not reveal reasonable expectation of success in making Claim 1 composition.**

In the 519 patent, fumed alumina is taught only **once** and only with one specific polymer, i.e. a glycidyl methacrylate functional acrylic polymer prepared as described in PCT Patent Publication WO 97/29854 and PCT patent application Ser. No. US97/16800 (column 68, lines 11-15). Accordingly, the disclosure implicitly suggest that fumed alumina is preferably combined with glycidylmethacrylate functional acrylic polymer. A skilled person in the art would not reasonably expect success in replacing the polymer by polyurethane and combining it with the “fumed” alumina.

**3. The 472 patent is not reasonably suggestive to of the claimed composition**

Claim 1 relates to a composition comprising urethane polymer and fumed alumina. The 472 patent relates to a transparent coating comprising a resin and a heat responsive material that increases in opacity when exposed to heat. The 472 patent discloses that the resin could be polyurethane. However, the disclosure does not provide sufficient guidance to render Claim 1 composition obvious to one of ordinary skill in the art, because polyurethane is taught, if not buried, in such an over broad context that the disclosure actually has minimum suggestive effect, if any, for a skilled artisan to arrive at the specific combination of urethane polymer and fumed alumina. For example, polyurethane is disclosed in the 472 patent as “...a resin. It is preferred that the resins are film formers. The resin can be organic or inorganic. The resin can be water, solvent, or oil soluble or dispersible. A water soluble resin is preferred relative to a solvent soluble resin in view of environmental concerns. Examples of suitable water soluble resins include silicate resins, acrylic resins, anionic resins, and cationic resins. Preferred examples of resins include sodium silicate, e.g., SILICATE STAR.TM. from PG Corporation, Forge Valley, Pa., polyacrylic acid or a salt thereof, copolymers comprising acrylic acid, e.g., JONCRYL.TM. resins from S.C. Johnson & Son, Inc., Racine, Wis., polyurethanes, e.g., the water soluble

polyurethane, FLEXTHANE.TM. 620 from Air Product and Chemical Co., Allentown, Pa., polystyrene sulfonate (Aldrich Chemical Company, Milwaukee, Wis.), and polyallylammonium chloride (Aldrich Chemical Company). Neutral resins also can be used. Examples of suitable resins include melamine formaldehyde, urea formaldehyde, polyureas, polyamines, polyvinylalcohol (PVA), water soluble siloxanes, polyvinylpyrrolidone (PVP), copolymers of vinylpyrrolidone and vinylacetate, alkyl cellulose, cellulose ethers, cellulose acetate, and cellulose nitrate. Derivatives of resins that have been rendered water soluble by providing water soluble or hydrophilic groups also can be used. Natural resins such as starch, gum arabic, and pectin also can be used. Water soluble resins are suitable for water-flexography. Resins that are not water soluble but are soluble in a mixed solvent containing water can also be used” (column 3, lines 9-37).

In summary, both the 519 and the 472 patents fail to suggest to a person of ordinary skill in the art that they should make the claimed composition, and reveal to a person of ordinary skill in the art a reasonable expectation of success in making the composition of Claim 1. As such, Claim 1 is patentable under 35 U.S.C. §103 over the cited references. Applicants respectfully request that Claim 1 be allowed.

**B. Claims 2-21 are patentable under 35 U.S.C. §103 over the cited references**

For a claim to be obvious, the prior art must 1) suggest to a person of ordinary skill in the art that they should make the claimed composition or carry out the claimed process, and 2) reveal to a person of ordinary skill in the art a reasonable expectation of success in making the composition or carrying out the process. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Further, to establish *prima facie* obviousness of a claim, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. §2143.03 (8<sup>th</sup> ed.). For the following reasons Applicants submit that the references cited by the Examiner do not teach or suggest all the limitations of the

amended claims and therefore render pending claims 2-21 non-obvious. Applicants respectfully request that claims 2-21 be allowed.

Claims 2-10 directly or indirectly depend from Claim 1. The claims either add more elements to the composition of Claim 1 or add more limitations to existent elements. In detail, Claim 2 depends from Claim 1 and has added one more element, an acrylic polymer. Claim 3 also depends from Claim 1 and has added one more element, a hydrocarbon solvent. Claim 4 depends from Claim 1 and has added one more element, water. Claim 5 depends from Claim 1 and has added one more limitation on the solids weight content of the composition. Claim 6 depends from Claim 1 and has added one or more elements such as coalescing aids, crosslinkers, silica, thickeners, freeze thaw agents, surfactants, defoamers, biocides, preservatives, flow control agents, dispersants, surface driers, through driers, antiskinning agents, and mixtures thereof. Claim 7 depends from Claim 1 and has added one more limitation on the density of fumed alumina. Claim 8 depends from Claim 1 and has added one more limitation on the concentration of fumed alumina in the composition. Claim 9 depends from Claim 1 and has added one more limitation on the particle size of fumed alumina. Claim 10 directly depends from Claim 6 which is dependent from Claim 1, and has added more limitations to the coalescing aids, crosslinkers, thickeners, freeze thaw agents, surfactants, defoamers, biocides, preservatives, flow control agents, dispersants, surface driers, through driers, and antiskinning agents.

Independent Claim 11 relates to a method for making a coating composition comprising combining a urethane polymer and fumed alumina. The patentability of Claim 11 is supported on the same ground as that for Claim 1. Claims 12-19 directly or indirectly depend from Claim 11. The claims either add more elements to the composition of Claim 11 or add more limitation to existent elements. Therefore, any individual claim from Claims 12-19 is less obvious and more patentable over the cited references than Claim 11 is. In detail, Claim 12 depends from Claim 11 and has added one more element, an acrylic polymer. Claim 13 also depends from Claim 11 and has added one more element, water. Claim 14 depends from Claim 11 and has added one more

element, a hydrocarbon solvent. Claim 15 depends from Claim 11 and has added one more limitation on the solids weight content of the composition to be made. Claim 16 depends from Claim 11 and has added one or more elements such as coalescing aids, crosslinkers, silica, thickeners, freeze thaw agents, surfactants, defoamers, biocides, preservatives, flow control agents, dispersants, surface driers, through driers, antiskinning agents, and mixtures thereof. Claim 17 depends from Claim 11 and has added one more limitation on the density of fumed alumina. Claim 18 depends from Claim 11 and has added one more limitation on the concentration of fumed alumina in the composition. Claim 19 directly depends from Claim 16 which is dependent from Claim 11, and has added more limitations to the coalescing aids, crosslinkers, thickeners, freeze thaw agents, surfactants, defoamers, biocides, preservatives, flow control agents, dispersants, surface driers, through driers, and antiskinning agents.

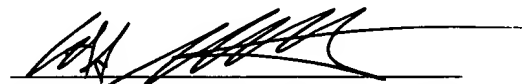
In the Office Action, Examiner holds that Claims 20 and 21 are patentable over the 472 patent but not over the 519 patent. Claim 20 relates a method of finishing a wood floor comprising a) stripping an existing coating from the wood floor and/or sanding the wood floor, and the application of a coating composition comprising urethane polymers and fumed alumina to said wood floor. The Examiner is respectfully requested to identify where this teaching or suggestion appears in the '519 patent.

### **CONCLUSION**

In view of the foregoing, Applicants respectfully submit that pending claims 1-21 are in condition for allowance.

Respectfully submitted,

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